WHAT IS CLAIMED IS:

1. A system comprising:

an X–ray source comprising,

a cold cathode, the cold cathode having a curved emission surface capable of emitting electrons; and

an anode spaced apart from the cathode, the anode being capable of emitting X-rays in response to being bombarded with electrons emitted from the curved emission surface, only a portion of the anode being bombarded at a time;

wherein a relative position of the anode with respect to the curved emission surface changes during operation of the x-ray source.

2. The system of claim 1, wherein the anode is configured to rotate thereby changing the relative position of the anode with respect to the curved emission surface.

3. The system of claim 2, wherein the anode is configured to rotate about an axis and the axis does not extend through a center of the curved emission surface.

4. The system of claim 1, wherein the electrons bombard the anode at a focal spot of the anode, and wherein a size and shape of the focal spot is determined at least in part by a curvature of the curved emission surface.

5. The system of claim 1, wherein the cold cathode comprises a plurality of emitters disposed on a substrate and a gate conductor disposed adjacent the plurality of emitters, and wherein the plurality of emitters are operative to emit electrons when a bias voltage is applied to the gate conductor.

6. The system of claim 1, further comprising a vacuum housing and an X–ray transmissive window, wherein the cathode and the anode are disposed within the housing, and wherein the X-rays exit the X-ray source by way of the transmissive window.

7. The system of claim 1, wherein the cold cathode is fabricated of a monolithic semiconductor.

8. The system of claim 1, wherein the system is a medical imaging system.

9. The system of claim 1, wherein the system is a security checkpoint imaging system.

10. The system of claim 1, further comprising

an x-ray detector adapted to detect x-rays from the anode after they have passed through a subject of interest; and

a communication interface, the communication interface being coupled to the x-ray detector and configured to transmit image data of the subject of interest over a communication network.

11. A system comprising:

an X–ray source comprising,

a cold cathode, the cold cathode having a curved emission surface capable of emitting electrons, the curved emission surface being curved in two dimensions; and

an anode spaced apart from the cathode, the anode being capable of emitting X-rays in response to being bombarded with electrons emitted from the curved emission surface.

12. The system of claim 11, wherein the cold cathode comprises a plurality of emitters disposed on a substrate and a gate conductor disposed adjacent the plurality of emitters and wherein a bias voltage applied to the gate conductor is less than 120 V.

13. The system of claim 12, wherein the bias voltage applied to the gate conductor is less than about 50 V.

14. The system of claim 11, wherein the curved emission surface comprises a plurality of emitters each having an effective emitting area equal to or less than about 1×10^{-15} cm^2.

15. The system of claim 11, further comprising a vacuum housing and an X–ray transmissive window, wherein the cathode and the anode are disposed within the housing, and wherein the X-rays exit the X-ray source by way of the transmissive window.

16. The system of claim 11, wherein the cold cathode is fabricated of a monolithic semiconductor.

17. The system of claim 11, wherein the system is a medical imaging system.

18. The system of claim 11, wherein the system is a security checkpoint imaging system.

19. The system of claim 11, further comprising

an x-ray detector adapted to detect x-rays from the anode after they have passed through a subject of interest; and

a communication interface, the communication interface being coupled to the x-ray detector and configured to transmit image data of the subject of interest over a communication network.

20. The system of claim 11, wherein a diameter of the anode is larger than a diameter of the cathode.

21. The system of claim 11, wherein a relative position of the anode with respect to the curved emission surface changes during operation of the x-ray source.

22. The system of claim 21, wherein the anode is configured to rotate thereby changing the relative position of the anode with respect to the curved emission surface.

23. The system of claim 21, wherein the emission surface of the cathode comprises a plurality of emitters comprising

a first set of emitters, the first set of emitters being operative to emit a first electron beam having a first focal spot with a first shape, and

a second set of emitters, the second set of emitters being operative to emit a second electron beam having a second focal spot with a second shape, the second shape being different than the first shape, and

wherein the first set of emitters and the second set of emitters are located on a same emission surface and are separately energizable.

24. The system of claim 23, wherein the first set of emitters and the second set of emitters are located on a same curved emission surface.

25. The system of claim 11, wherein the surface is curved in one of the two dimensions about an axis.

26. The system of claim 25, wherein the surface is only curved in the one dimension about the axis.

27. The system of claim 11, wherein the surface of the cathode being curved in two dimensions comprises being curved with a first radius in a first of the two dimensions and curved with a second radius, different than the first radius, in a second of the two dimensions.

28. A system comprising:

an X–ray source comprising,

a cold cathode, the cold cathode having an emission surface capable of emitting electrons and comprising a plurality of emitters, the plurality of emitters comprising

a first set of emitters, the first set of emitters being operative to emit a first electron beam having a first focal spot with a first shape, and

a second set of emitters, the second set of emitters being operative to emit a second electron beam having a second focal spot with a second shape, the second shape being different than the first shape; and

an anode, the anode being spaced apart from the cathode, the anode being capable of emitting X-rays in response to being bombarded with electrons emitted from the curved emission surface;

wherein the first set of emitters and the second set of emitters are located on a same emission surface and are separately energizable.

29. The system of claim 28, wherein the cold cathode comprises a gate conductor disposed adjacent the plurality of emitters and wherein a bias voltage applied to the gate conductor is less than 120 V.

30. The system of claim 29, wherein the bias voltage applied to the gate conductor is less than 50 V.

31. The system of claim 28, wherein each of the plurality of emitters have an effective emitting area equal to or less than about 1×10^{-15} cm^2.

32. The system of claim 28, wherein the first set of emitters and the second set of emitters are located on a same curved emission surface.

33. An X-Ray system, comprising:

an X–ray source comprising

a cold cathode, the cold cathode having a curved emission surface capable of emitting electrons; and

an anode, the anode being spaced apart from the cathode, the anode being capable of emitting X-rays in response to being bombarded, on a surface of the anode, with electrons emitted from the curved emission surface;

wherein the curved emission surface of the cathode has a different shape than the surface of the anode bombarded with electrons.

34. The system of claim 33, wherein a relative position of the anode with respect to the curved emission surface changes during operation of the x-ray source.

35. The system of claim 33, further comprising an x-ray detector configured to detect x-rays emitted from the x-ray source.

36. The system of claim 35, further comprising an image reconstructor configured to construct an image based on data received from the x-ray detector.

37. The system of claim 33, wherein the curved emission surface is curved in two dimensions.

38. The system of claim 33, wherein,

the curved emission surface comprises,

a first set of emitters, the first set of emitters being operative to emit a first electron beam having a first focal spot with a first shape, and

a second set of emitters, the second set of emitters being operative to emit a second electron beam having a second focal spot with a second shape, the second shape being different than the first shape; and

wherein the first set of emitters and the second set of emitters are separately energizable.

39. The system of claim 33, further comprising an X–ray controller, the X–ray controller being coupled to the cold cathode to provide control signals to control emission of electrons from a plurality of emitters of the cold cathode, the X–ray

controller being configured to receive feedback information pertaining to the operation of the imaging system, and to adjust the control signals for the plurality of emitters as a function of the feedback information

40. An imaging system for imaging a subject of interest, the imaging system comprising:

an X–ray source, the X–ray source including

a cold cathode disposed within a housing, the cold cathode having a curved emission surface, the cold cathode comprising a plurality of emitters disposed on a substrate, and

an anode, the anode being disposed within the housing and spaced apart from the cathode, the anode emitting X-rays in response to being bombarded with electrons emitted from the curved emission surface;

a detector configured to receive the X–rays emitted by the x-ray source and generate signals in response thereto; and

an X–ray controller, the X–ray controller being coupled to the cold cathode to provide control signals to control the emission of electrons from the plurality of emitters, the X–ray controller being configured to receive feedback information pertaining to the operation of the imaging system, and to adjust the control signals for the plurality of emitters as a function of the feedback information.

41. The system of claim 40, further comprising

an x-ray detector adapted to detect x-rays from the anode after they have passed through a subject of interest; and

a communication interface, the communication interface being coupled to the x-ray detector and configured to transmit image data of the subject of interest over a communication network.

42. An x-ray system comprising:

an X–ray source, the X–ray source including

a cold cathode disposed within a housing, the cold cathode having a curved emission surface, the cold cathode comprising a plurality of emitters disposed on a substrate, and

an anode, the anode being disposed within the housing and spaced apart from the cathode, the anode emitting X-rays in response to being bombarded, at a focal spot, with electrons emitted from the curved emission surface; and

an X–ray controller, the X–ray controller being coupled to the cold cathode to provide control signals to control the emission of electrons from the plurality of emitters, the X-ray controller configured to adjust the control signals for the plurality of emitters so as to cause the focal spot to wobble.